4 December 1979

25X1A MEMORANDUM FOR: [redacted], Chief, Iranian Analytic Center

25X1A FROM: [redacted] Chief, Middle East/Africa/ Western Hemisphere Branch, GD/OGCR 25X1

SUBJECT: Geographic Brief on the Province of Khuzestan [redacted]

1. Transmitted herewith are four copies of a short but somewhat bulky geographic brief entitled "Khuzestan: Iran's Achilles Tendon," GC M 79-10119K, December 1979. The paper provides a general overview of Khuzestan's physical and human geographic aspects, and points out those factors which make Khuzestan a place of economic and strategic importance to Iran. [redacted]

2. This material was prepared by several analysts from OGCR, including our representative on your task force. We will continue to focus on the Persian Gulf area, and we expect to produce several items of interest in the near future. [redacted] 25X1

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[redacted]

Attachments:
A/S

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CENTRAL INTELLIGENCE AGENCY

NATIONAL FOREIGN ASSESSMENT CENTER

Washington, D.C. 20505

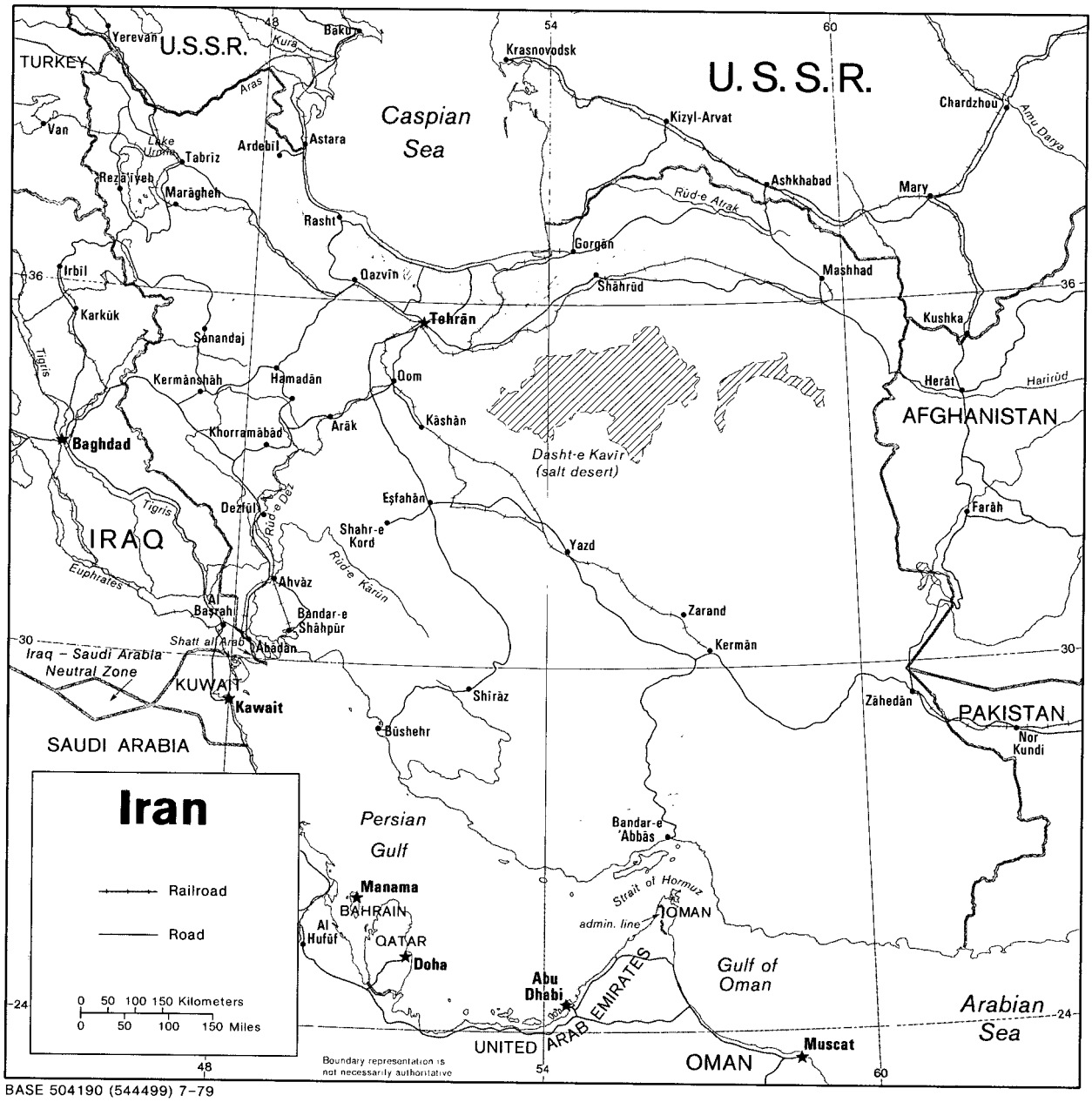
Khuzestan: Iran's Achilles Tendon

Summary

Khuzestan Province, in southwestern Iran, is economically and strategically the most important region in the country. Almost 70 percent of Iran's crude oil is produced in the province, and it accounts for nearly all of the country's natural gas production. Khuzestan's four ports at the head of the Persian Gulf are primary transfer points for Iran's imports as well as exports. Road and rail networks connect Khuzestan's ports with the interior by funnelling through a series of narrow chokepoints in the rugged Zagros Mountains.

Khuzestan's population, some 2.2 million Arabs and Persians, represents only about 6.5 percent of the country's total population. The Arab community may account for two-thirds of these residents, and many have strong cultural ties with Arabs in neighboring Iraq and other Gulf states. Almost all of the Persians and probably more than half of the Arabs in Khuzestan are Shiites, but a substantial Arab minority is Sunni. The socioeconomic gulf between these two groups is considerable. Arab literacy levels have increased considerably in recent years, but Arabs still occupy the lower economic and social rungs in the community. The Arabs resent their lowly status in Khuzestan, and a strong undercurrent of hostility and anti-Persian sentiment pervades the province.

Khuzestan is hot and dry, and only an average of 150 to 200 millimeters of rain falls annually. Most of the province is a flat-to-rolling plain, but the northeast contains a range of low, rugged hills. Khuzestan is fairly well suited for conventional military operations, and cross-country movement could be accomplished with relative ease. Major hard-surfaced roads can accommodate military traffic but would require considerable maintenance if subjected to heavy volumes. Khuzestan's coastline is unsuitable for large-scale amphibious operations, as nearshore approaches are encumbered by bars, reefs, and extensive mudflats. Neighboring Bushehr Province, with several sandy beaches and nearby coastal roads, offers somewhat better prospects.



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Khuzestan: Iran's Achilles Tendon

The Khuzestan plain, situated in southwestern Iran at the head of the Persian Gulf, is strategically and economically the most important region in Iran. Located in Khuzestan are:

- Most of Iran's oil and gas fields, the chief source of its income.
- The Rud-e Karun (river) system, the largest volume of freshwater in this water-deficient country.
- The ports (and land routes to them) through which pass most of Iran's imports and exports.

Vital as this region is to Iran, it is neither physically nor culturally part of the Persian heartland. Instead, Khuzestan is an eastern extension of the Mesopotamian floodplain, the remainder of which is in Iraq. The bulk of Khuzestan's inhabitants are Arab tribesmen with strong cultural kinship ties to Arabs in neighboring Iraq and the Gulf states. Historically, the hot, enervating climate of Khuzestan did not appeal to the highland-dwelling Persians and even today, the typical Persian technocrat working in Khuzestan does not plan to settle there permanently. He is viewed by the Arabs as a carpetbagger.

The Land

Khuzestan, considered by the natives as part of "Arabistan," is a large expanse of lowland on the southwestern flank of the Zagros Mountains (map 1, Map Supplement). Part of the plain formed from the sedimentary deposits of the Rud-e Karkheh Kur and the Rud-e Karun, Khuzestan is shaped roughly like a triangle; its apex is at Dezful, where begins the tortuous route through the mountains to Tehran and the interior plateau, and its base extends eastward from the Iraqi border about 200 kilometers along the shoreline of the Persian Gulf.

The city of Ahvaz in central Khuzestan is situated on the Rud-e Karun at the point where a break in the slope of the plain causes rapids that bar further navigation upstream. Ahvaz is a useful geographic reference point in Khuzestan:

- North of Ahvaz the land is rolling and fertile and--given water--suitable for agricultural development.

° East of Ahvaz a region of low but rugged hills rarely more than 500 meters high extends from the northwest to the southeast along the base of the Zagros Range. In this corduroy territory are located most of the major Iranian oilfields.

° South of Ahvaz a flat expanse of terrain stretches about 125 kilometers to the Gulf. Poorly drained and subject to flooding, it contains large areas of marshland, mangrove swamps, and salt desert. Agriculture in this region is limited to the groves of date palms that line the banks of the larger streams.

North and east of Khuzestan, the Zagros Mountains form a formidable natural boundary. To the west the Iran-Iraq border runs through sparsely inhabited marshland and along the Shatt al-Arab (river). To the south lies the shore of the Persian Gulf.

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Weather and Climate

Khuzestan is hot and dry most of the year, although its winters are relatively mild. Mean daily minimum temperatures range from 8°C to 12°C in the winter. In the summer, mean daily maximums range from 42°C to 46°C. (The highest temperature ever recorded was a scorching 53°C at Abadan.) The region averages only 150 to 200 millimeters of rain annually, with about half of it falling from December through March. See appendix B for detailed climatic data.

During the period December through March, mean daily maximum temperatures range between 19°C and 26°C. Mean daily minimums, during the same period, range between 8°C and 12°C. Rains occur about four times a month, with monthly precipitation averaging about 25 millimeters. About 15 days of each month the skies are cloudless. Periods of heavy cloudiness (ceilings below 300 meters, visibility below 4 kilometers) and high winds (above 16 knots) occur about 5 percent of the time, most often in the late afternoons. The weather is usually best--skies clearest, winds lowest--in the early mornings.

History

Ruins of former civilizations indicate that man has inhabited Khuzestan for at least 4,000 years. In ancient times there were thriving settlements at the sites of such present-day cities as Abadan, Khorramshahr, Ahvaz, and Dezful. Those along the coast were trading centers, while those on the upper plain between modern Ahvaz and Dezful were centers of civilizations based on agriculture. Notable among the latter was the ancient kingdom of Elam (1200-640 B.C.) whose capital Susa, was located about 25 kilometers south of Dezful. In 640 B.C. the Assyrians absorbed Elam and destroyed Susa.

Under Cyrus the Great (550-529 B.C.) the region became part of the Persian Empire that eventually stretched from the Indus to the Mediterranean. Cyrus rebuilt Susa and made it his Persian capital.

In those days the region--then called Susiana--was famous for its production of large amounts of wheat and barley. Traces of old canals indicate that agriculture then, as now, was dependent on irrigation. The evidence suggests that increasing soil salinity probably caused by waterlogging led to a gradual decline in soil fertility and a consequent withering of the ancient agricultural civilizations of the region.

During the thousand years after Cyrus the area changed hands several times, eventually becoming part of the Neo-Persian Empire of the Sassanidae (A.D. 226-641). Between 633 and 651, Arabs espousing the militant new Islamic faith invaded and conquered all of Iran. The seminomadic Arab tribesmen who settled in Khuzestan (apparently by then rather depopulated) established a settlement pattern and economy based partly on agriculture and partly on herding that endured there until the 20th century.

Aside from a period of Mongol domination (1260-1353), the Arabs maintained control of Khuzestan (then called Arabistan) until it was incorporated into a new Persian state by the rulers of the Safavid Dynasty (1502-1736). Although Persia subsequently fell under foreign domination (Russia and Britain), the status of Khuzestan as part of Persia was not challenged; in the 1920s, when Persia was again recognized by the international community as an independent state, Khuzestan was understood to be a part of Persia, albeit a part largely inhabited by Arabs.

Khuzestan's southern boundary with Iraq--formed partially by the waters of the Shatt al-Arab--has been a longstanding point of contention between Iran and Iraq. While the question was ostensibly resolved in 1975, through an Algerian sponsored mediation effort, this border issue remains a sensitive one and could revive since relations between the two countries have once again become strained.

The People

There are an estimated 2.2 million people in Khuzestan, roughly 6.5 percent of the total Iranian population. They are a mix of persons with Arab and Persian cultural backgrounds. Although official Iranian Government figures tend to minimize the size of the Arab community, probably two-thirds of the citizens of Khuzestan consider themselves Arabs. Many have cultural ties with Arabs in neighboring countries, especially Iraq and Bahrain. Almost all of the Persians and more than half of the Arabs are Shiites; a substantial minority of the Arabs are Sunnis.

More than half of the Khuzestanis, including almost all of the Persians, live in urban areas, more than 40 percent of them in four major cities: Ahvaz (329,000), Abadan (297,000), Khorramshahr (147,000), and Dezful (110,000) (Photo Supplement). In general, the Arabs are concentrated in the eastern and coastal parts of Khuzestan, in the Rud-e Karkheh Kur valley, and around the Gulf port cities. Khorramshahr is the center of Arab influence, and there are large numbers of Arabs in Abadan and Ahvaz. Persians (including Luri tribesmen) predominate in the northern cities of Dezful and Andimeshk.

Arabs occupy the lowest socioeconomic stratum in Khuzestan society: they are poorly paid, poorly represented in technical and managerial positions, and all but excluded from the provincial administration. This present gulf between Arab and Persian developed largely after World War II as a consequence of rapid economic and industrial development in the province. When this development began, the native Arabs were poorly prepared to participate. Tribally organized, largely illiterate, experienced at little besides herding animals, few had marketable skills. Many were
25X6 unhealthy, [redacted] Moreover, as the British developers of the oilfields had done early in the century, Persian managers tended to contract with local Arab sheiks for unskilled labor and to import skilled workers from other parts of the country as well as from foreign lands. Conditioned by decades of stereotyping, Persians tend to be patronizing toward Khuzestani Arabs; many do not hide their contempt. The Arabs, understandably, resent both the Persian attitude and their own lowly station. A strong undercurrent of Arab hostility now threatens the stability of this key region.

Part of the problem arises from the success of efforts made by the Shah's government to improve the status of the Arabs in Khuzestan (as well as in neighboring Bushehr Province, where there is also a sizable Arab community). The Arabs especially benefited from programs in the fields of health and education. Literacy rates are much higher among Arabs (especially males) aged 25 or younger than among those older than 25. According to the 1976 census, three-quarters of Khuzestan's total population between ages 6 and 14 of both sexes were able to read and write Farsi[1] at levels appropriate to their ages. Given the present Arab/Persian population mix in Khuzestan, many of these children had to be Arabs.

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[1] Most Arabs in Khuzestan, it is believed, continue to speak Arabic even though, beginning under the Shah, use of Farsi has been mandatory in schools and public media, the object being to "Persianize" all ethnic groups in the country and thereby promote unity. Consequently, most Arabic cultural influences on the Khuzestani population emanate from media sources in neighboring Iraq and the Gulf states.

The rising levels of education, improved health standards, and emergence of politically conscious groups have made the Khuzestani Arabs increasingly aware of their second-class status. They are now demanding more representation in local government, the use of Arabic in schools and in the public media, and more opportunities for local Arabs in the higher echelons of industry, the police, and the military services. They want a "say" in Khuzestan.

There is little evidence that either the local Persian community or the present national regime is prepared to make more than token responses to the Arab demands. Consequently, the Khuzestani Arabs, who were militantly anti-Shah, are becoming just as militantly anti-Ayatollah Khomeini. The present turmoil in Tehran has obscured the battle lines that were beginning to form; as a result, it is not at all clear how far the Khuzestani Arabs are prepared to go in pressing their demands. Probably, they do not know themselves.

The Economy

Oil

The presence in Khuzestan of deposits of oozing material that burned readily was known in ancient times. Zoroastrian priests reputedly made use of such material in their temples. The first oil well in Khuzestan, however, was drilled by British geologists in 1902, near Masjed Soleyman. The first British production well came onstream in 1908. After World War II, the increasing worldwide demand for oil coupled with the accessibility of the Khuzestan oilfields to the Persian Gulf led to their rapid development. Subsequently, a support infrastructure was added: pipelines, port facilities, refineries,[2] and, most recently, associated petrochemical industries. The province now accounts for almost 70 percent of Iran's crude oil production (map 2, Map Supplement). Another 20 percent comes from neighboring provinces to the north and southeast of Khuzestan.

Natural Gas

Outside of the USSR, Khuzestan contains the world's largest proven reserves of natural gas. Given the relative ease of producing natural gas there, as opposed to northern Siberia where most of the Soviet gas lies, Khuzestan is expected to eventually become the world's leading source of natural gas. At first considered a near-worthless byproduct

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[2] The refinery at Abadan, the largest in the Middle East, accounts for more than 60 percent of Iran's current refining capacity.

to be flared off, natural gas prior to the Shah's departure, accounted for 20 percent of Iran's income from oil and gas sales. As the quantity of economically pumpable oil gradually diminishes, the major extraction effort could conceivably shift to natural gas. A gas pipeline from the Khuzestan fields serves Isfahan and a number of other Iranian cities en route northward to the Soviet Union.

Agriculture

Of the many economic development projects made possible by Iran's oil revenues in the 1960s and 1970s, among the most ambitious was the effort to reestablish the ancient role of the northern Khuzestan plain as a major breadbasket. One of the few underdeveloped areas in Iran where both fertile soil and adequate supplies of freshwater were available, the northern Khuzestan plain was selected to be the site of a huge agro-industrial complex. An international consortium of private companies, including several American firms, was involved in the project, which is still far from completion after some 20 years.

The first stage involved the construction of the Muhammad Reza Shah Dam on the Rud-e Dez, which was completed in 1963. Six years later, about 27,000 hectares of land south of Dezful had been brought under irrigation and were producing crops of wheat, sugarcane, and sugar beets. A second dam, the Reza Shah Kabir on the Rud-e Karun near Masjed Soleyman, was completed in 1977; water from this reservoir was to be used to irrigate a large area south of Shushtar. While both dams incorporate hydroelectric plants which feed into the national grid, it is not likely that much progress has been made on the Reza Shah Kabir's irrigation scheme since the Shah departed. Furthermore, it is not likely that any real progress will be made until such time as Iran recovers from its domestic troubles and international preoccupations, and reestablishes ties with the foreign firms instrumental in completing what has been done so far.

The establishment of the large irrigated agricultural area south of Dezful displaced many Arabs from their traditional homes, plots, and way of life. They were expected to relocate nearby, take jobs at the project, and thereby share in the new prosperity of the region. Many could not or would not adapt to the new system, however, and refused to work on the project. As a consequence, farm workers had to be brought in from other regions. To the disgruntled Arabs this was but one more instance of Persian perfidy.

Transportation

Ports

The four ports of Khuzestan have long been the primary transfer points for Iran's imports and exports. Their location at the head of

the Persian Gulf gives them an advantage of proximity to the principal economic and transportation centers in the country not shared by other ports. The Khuzestan shoreline is mainly mud and offers neither harbor nor deepwater anchorage; consequently all four ports are riverine: Abadan and Khorramshahr lie more than 40 nautical miles upriver from the mouth of the Shatt al-Arab, while Bandar-e Shahpur (recently renamed Bandar-e Khomeini) and Bandar-e Ma'shur are situated on the Khowr-e Musa tidal bay. See Photo Supplement for enlargements of port areas.

IRAN: PORTS IN PERSIAN GULF REGION

Name	Location	Military Port Capacity* (Metric Tons)	Remarks
Khuzestan Ports			
Abadan	Shatt al Arab 47 n.m. upriver from Persian Gulf	5,300	Former POL port. Limited significance as general cargo port. Contains largest refinery in Middle East.
Bandar-e Ma'shur	6 n.m. NE of Bandar-e Shahpur on tidal inlet	327	Iran's major oil products port.
Bandar-e Shahpur (Bandar-e Khomeini)	Khowr-e Musa tidal bay on Persian Gulf	11,800	Second ranking general cargo port. Container facility includes two 40-ton container cranes. Grain unloading facilities. Recently under expansion.
Khorramshahr	Shatt al Arab 59 n.m. upriver from Persian Gulf, at confluence with Rud-e Karun	12,800	Handles 65 percent of Iran's imported dry cargo. Has new roll-on, roll-off pier. Naval headquarters, Western Fleet.
Other Ports			
Bandar Abbas	Strait of Hormuz	5,000	Export port, shipping crude oil and chromite. Persian Gulf Fleet Headquarters. Handles containers, one 25-ton container crane.
Bushehr	Well-sheltered harbor in Khowr-e Soltani, on Persian Gulf.	2,270	Distribution center for refined petroleum products, commercial and trading center for the area. Considerable lightering of cargo. Naval repair yard.
Jazireh-ye Khark (Khark Island)	In Persian Gulf 28 n.m. NW of Bushehr	1,188	One of world's largest crude oil terminals. Can handle largest tankers. Most oil delivered to terminal via pipeline.

* An estimate of the maximum amount of general cargo that can be unloaded onto the wharves and cleared from the wharf aprons during a period of one 24-hour day (20 effective cargo-working hours).
Arab Terms: Shatt = river; Rud = stream; Khowr = bay.

Rails

Rail lines lead from the ports to Ahvaz, the main transport hub in the center of the province, and from Ahvaz northeastward across the rugged Zagros Range to Tehran and the interior plateau. All are single-tracked, which limits their capacity and will eventually constrain further development of the ports and of the region.

IRAN: RAILROAD CHARACTERISTICS AND CAPACITIES IN PERSIAN GULF REGION

Routes

Terminals and Distance	Gage	Type of Traction	Capacity in Each Direction: Cars per Day	Trains per Day	Metric Tons per Train	Metric Tons per Day	Remarks
Bandar-e Shahpur - Ahvaz 120 kilomters	4'8.5"	Diesel	665	11	816	8,981	21 bridges, longest 1,057 m. at Kilometer Post (KmP) 120.
Khorramshahr - Ahvaz 122 kilometers	4'8.5"	Diesel	530	11	658	7,165	25 m. bridge at KmP 46.35.
Ahvaz - Tehran (via Andimeshk, Arak, Qom) 816 kilometers	4'8.5"	Diesel	185	9	290	2,540	134 bridges, longest 316 m. at KmP 240; 141 tunnels, longest 2,500 m. at KmP 240.

Yards*

Location	Capacity: Car per Day	Capacity: Metric Tons per Day	Remarks
Bandar-e Shapur	235	1,066	Capacity to sort and separate cars by destination.
Ahvaz	875	11,839	
Khorramshahr	475	6,396	
Andimeshk	155	2,087	
Arak	145	1,996	
Qom	160	2,177	
Tehran	380	5,171	

* Transshipment facilities at all yards listed

Roads

A highway network supplements the rail system, permitting the transport of much short-haul cargo by road. Some of the roads are hard-surfaced and of good quality, such as those leading from Abadan and Khorramshahr to Ahvaz, and from Ahvaz across the mountains to the northeast; on the whole, however, the road network is inadequate both in extent and in capacity.

IRAN: HIGHWAY CHARACTERISTICS AND CAPACITIES IN PERSIAN GULF REGION

Origin and Destination	Distance (Kilometers)	Characteristics	Capacity Forward: Vehicles per day	Capacity Forward: Metric tons per day	Remarks
Bandar Abbas to Qom via Baghin, Yazd, and Kashan	1,304				
Kilometer 0 to 451 (Baghin)	451	Bituminous, 7.0 m. wide, good condition, [redacted] shoulders, mountainous alignment.	1,740 1,570	5,534 4,990 Dry subsoil	Sharp curves and steep grades. Capable of heavy truck traffic. [redacted] tunnel, 55 km. N. of Bandar Abbas. [redacted] horiz. and [redacted] vert. clearance (clnc.) 3 bridges, longest [redacted] Min. clnc: horiz. [redacted] vert. unlimited.
Kilometer 451 to 764 (Yazd)	314	Bituminous, [redacted] wide, good condition, [redacted] shoulders, undulating alignment.	2,100	6,668 Dry subsoil	Can flood (Dec.-Apr) New construction; elevated, no obstacles.
Kilometer 764 to 1,304 (Qom)	539	Bituminous, [redacted] poor condition, [redacted] shoulders, flat to mountainous alignment.	1,400	4,445 Dry subsoil	[redacted] wide parallel and elevated road u/c. Some sharp curves and fords. Rail/highway transshipment capability at Kashan (1127 km.)
Bushehr to Ahvaz via Dow Gonbadan and Agha Jari	492				
Kilometer 0 to 249	249	Bituminous, [redacted] wide, poor to good condition, [redacted] shoulders, flat to mountainous alignment	142 71	454 227 Dry subsoil	Sharp curves and steep grades; subject to flooding and snow blockage. 6 major bridges, longest 278 m. Min. clnc: horiz. [redacted] vert. unlimited.
Kilometer 249 to 492 (Ahvaz)	243	Bituminous, [redacted] wide, good condition, [redacted] shoulders, flat to mountainous alignment.	928 828	2,948 2,631 Dry subsoil	Subject to flooding (Dec.-Apr.) Numerous culverts. 2 bridges, longer [redacted] Min. clnc: horiz. [redacted] vert. unlimited. Rail/highway transshipment capability at Ahvaz. Some portions elevated [redacted] through tidewater and marshland.
Ganaveh to Dow Gonbadan	105	Gravel, [redacted] wide, poor condition, [redacted] shoulders, flat to mountainous alignment.	171 86	544 272 Dry subsoil	Steep grades and sharp curves. Subject to flooding (Dec.-Apr.)
Bandar-e Shahpur to Bushehr-Ahvaz Road northwest to Agha Jari	72	Bituminous [redacted] good condition, [redacted] shoulders, flat alignment.	2,583 2,328	8,210 7,394	Elevated at [redacted] on southern portion. Rail/highway transshipment capability at Bandar-e Shahpur.
Abadan to Malavi via Ahvaz	389	Bituminous, [redacted] wide, good condition, [redacted] shoulders, general flat to undulating alignment.	2,100	6,668 Dry subsoil	Can flood Dec.-Apr. 9 bridges, longest 609 m. at Khorramshahr. Min. clnc.: horiz. [redacted] vert. unlimited. Rail/highway transshipment capability at Khorramshahr, Ahvaz, and Andimeshk.

Waterways

The Shatt al-Arab is navigable up to Khorramshahr, at the Iraqi border. It is an extremely important part of the transport system because Khorramshahr is Iran's main general-cargo port. A canal leads from Khorramshahr to the Rud-e Karun, which is navigable for shallow-draft vessels between Khorramshahr and Ahvaz. It is used chiefly for the intraregional transport of light cargo.

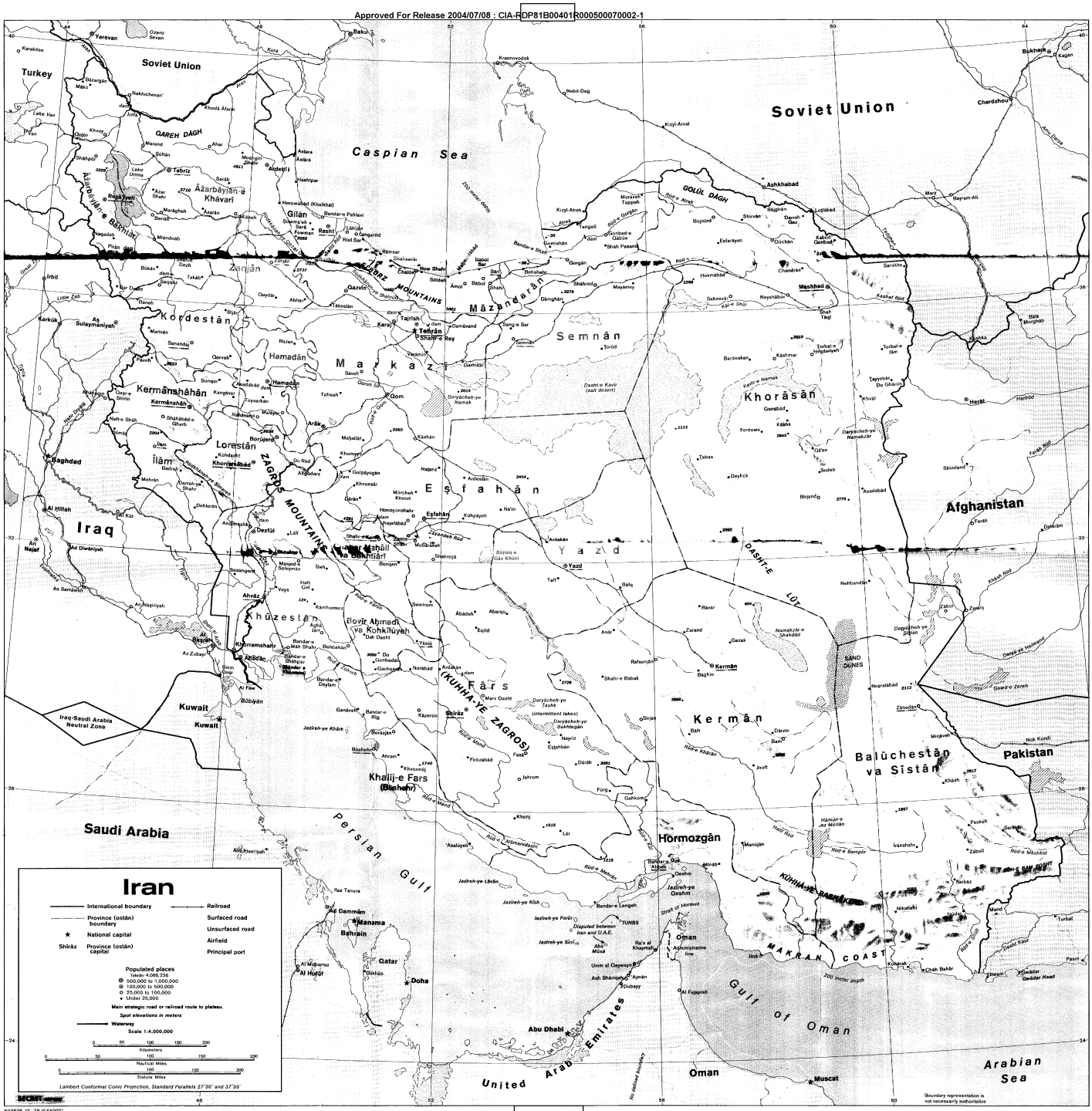
Airfields

There are 13 major airfields in the Persian Gulf area, of which 6 are located in Khuzestan. There are civilian air terminals at Abadan and Ahvaz. The capacities of the airfields vary, but several can handle C-141- and C-5A-size aircraft.

IRAN: AIRFIELDS IN PERSIAN GULF REGION

	Name	Coordinates	Runway(s) No.	Surface	Length x Width (Meters)	Capacity*
1.	Abadan International Airport	30°22'N/48°14'E	1	Asphalt	3,100x45	C-130
2.	Agha Jari	30°45'N/49°40'E	1	Asphalt	2,134x45	C-130, probably C-141
3.	Ahvaz	31°20'N/48°46'E	1	Asphalt	3,383x45	C-130
4.	Bandar Abbas International Airport	27°14'N/56°23'E	1	Asphalt	3,663x45	C-141, C-5A
5.	Bushehr	28°57'N/50°50'E	2	Asphalt	3,320x45	C-141, C-5A
6.	Dezful Highway Strip	32°24'N/48°11'E	1	Asphalt	3,048x40	C-141
7.	Guvila	31°13'N/48°58'E	1	Sand	1,402x34	C-47
8.	Jask	25°39'N/57°48'E	1	Asphalt	1,890x45	C-130
9.	Khark Island	29°16'N/50°19'E	1	Asphalt	1,562x45	DC-9
10.	Lengeh	26°32'N/54°49'E	1	Asphalt	2,000x44	C-130
11.	Qeys (Kish)	26°31'N/53°59'E	2	Asphalt	3,660x45	C-130, C-5A
12.	Vahdati Air Base	32°26'N/48°24'E	3	Asphalt	3,576x45	C-141, C-5A
13.	Chah Bahar	25°26'N/60°23'E	2	Asphalt	3,850x45	C-141

* Capacity of an airfield runway to sustain the weight of any multiple-wheel landing-gear aircraft in terms of equivalent single-wheel loading (ESWL). Expressed in types of aircraft, with consideration also given to runway length requirements.



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Central Intelligence Agency

Appendixes, Map Supplement, and Photo Supplement

Appendix A

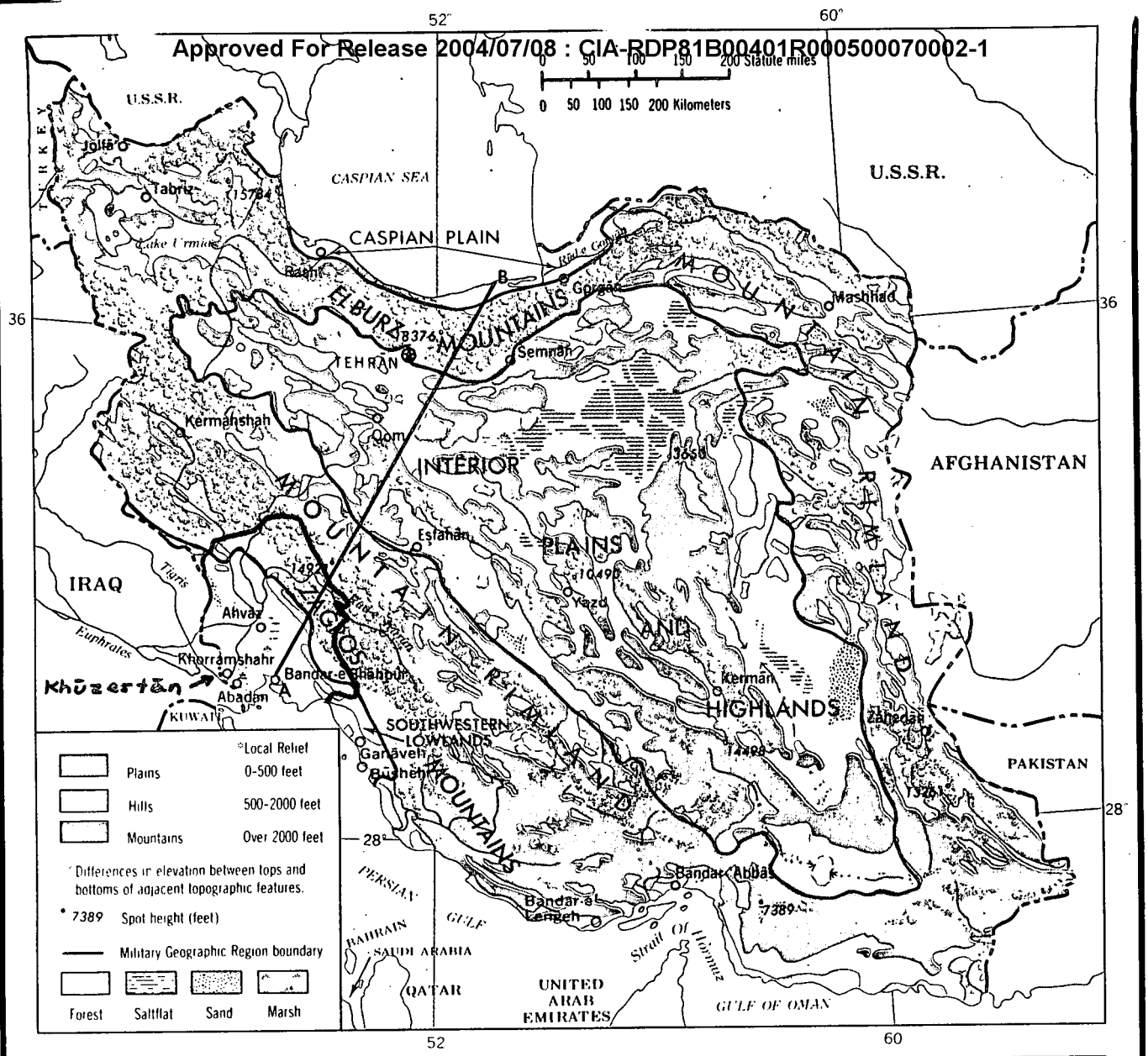
Khuzestan: Suitability for Military Operations

Located in the southwestern lowlands of Iran, Khuzestan is primarily a flat-to-rolling plain crossed by several large perennial streams. In the northeast, however, there is a range of low but rugged hills, few more than 500 to 600 meters high. The ground is generally covered by desert grasses, patches of loose sand, and irrigated cropland, except in the southwest and south, where there are marshes.

The region is fairly well suited for conventional military ground operations. Cross-country movement would be relatively easy on the plain except where obstructed by waterways, marshes, or aboveground pipelines. Such movement would be more difficult in the hilly terrain of the northeast. The major hard-surfaced roads would easily accommodate military traffic, although they would deteriorate quickly if subjected to high levels of sustained military traffic.

Concealment from ground or air observation and cover from flat-trajectory fire would be hard to find on the plain, somewhat easier to find in the northeastern hills. Airborne operations could be carried out in most parts of the region. There are numerous potential parachute drop zones and helicopter landing zones on the plain and several airfields that could accommodate assault-type aircraft.

Khuzestan's Persian Gulf coast is unsuitable for large-scale amphibious operations. The nearshore approaches are encumbered by bars, reefs, shoals, and extensive mudflats except where channels have been dredged; therefore, few, if any, prepared exits lead inland. Such manmade facilities as offshore oil rigs, submerged pipelines, and moored vessels could further hinder amphibious operations. However, neighboring Bushehr Province, contains several sandy beaches and nearby coastal roads that roughly parallel the shore, and thus offers somewhat better prospects for amphibious operations.



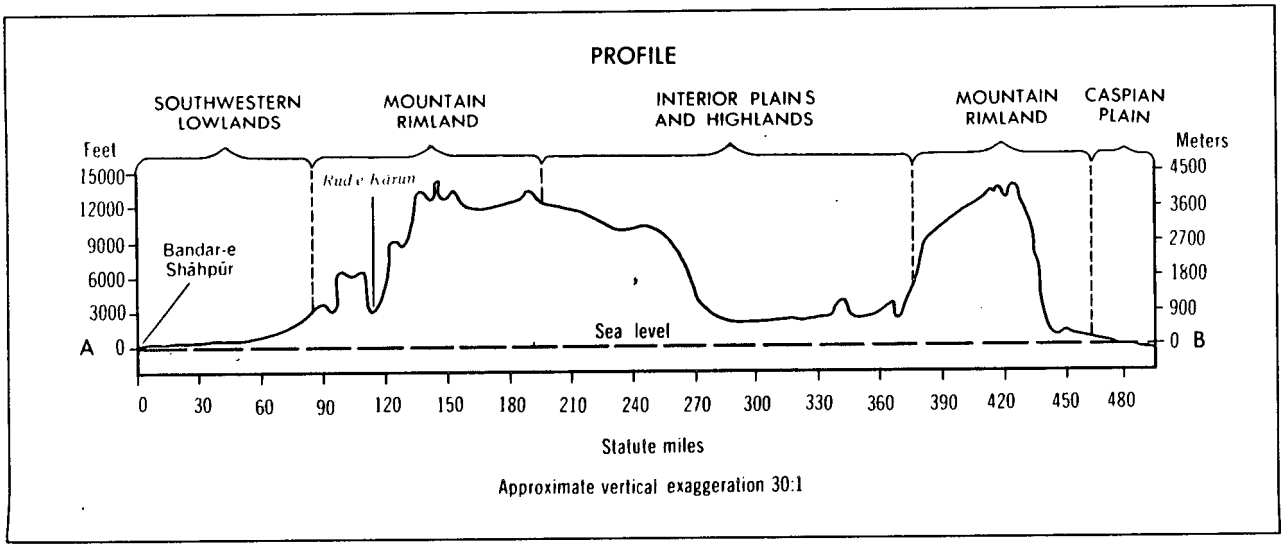


FIGURE 1. Military geographic regions and terrain

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Appendix B: Persian Gulf Region Climatic Data

IRAN: PERSIAN GULF REGION
ABSOLUTE MINIMUM TEMPERATURE (°C)

Station	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Annual
Abadan	-4.4	-3.9	2.2	7.2	15.0	17.2	20.0	17.2	15.6	10.0	0.6	-4.4	-4.4
Ahvaz	-7.2	-1.1	2.8	2.8	11.1	17.8	20.0	15.0	13.9	5.0	0.0	-1.1	-7.2
Bushehr	-1.1	1.1	5.0	10.0	13.9	17.2	21.1	22.2	15.6	12.2	5.0	2.2	-1.1
Bandar 'Abbas	5.0	8.9	12.8	15.0	20.0	22.2	27.8	28.9	23.9	17.8	11.1	6.1	5.0

IRAN: PERSIAN GULF REGION
ABSOLUTE MAXIMUM TEMPERATURE (°C)

Station	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Annual
Abadan	26.1	28.3	33.9	42.8	47.8	49.4	52.8	50.6	48.9	43.3	36.7	28.9	52.8
Ahvaz	26.1	31.1	37.2	43.9	51.1	52.2	52.8	51.1	48.9	42.8	37.2	30.0	52.8
Bushehr	27.8	27.8	33.9	41.1	46.1	45.0	50.0	47.2	42.8	41.1	33.9	30.0	50.0
Bandar 'Abbas	30.0	30.0	33.9	38.9	42.2	47.2	45.0	42.8	42.2	42.2	36.1	32.2	47.2

IRAN: PERSIAN GULF REGION
MEAN DAILY MINIMUM TEMPERATURE (°C)

Station	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Annual
Abadan	6.7	8.9	12.2	17.2	23.3	25.6	27.8	27.2	22.8	17.8	12.8	8.3	17.8
Ahvaz	7.2	8.3	12.2	17.2	22.2	25.6	27.2	26.7	21.7	17.2	12.2	7.8	17.2
Bushehr	10.0	11.1	13.9	17.8	22.2	25.0	27.8	27.2	23.9	17.8	13.9	11.1	18.9
Bandar 'Abbas	13.3	16.1	18.9	22.2	26.1	28.9	31.1	31.1	29.4	25.0	19.4	13.9	22.8

IRAN: PERSIAN GULF REGION
MEAN DAILY MAXIMUM TEMPERATURE (°C)

Station	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Annual
Abadan	17.8	20.0	25.0	31.7	38.3	42.8	45.0	45.0	42.2	36.7	27.2	19.4	32.8
Ahvaz	18.3	21.7	26.1	31.7	38.9	44.4	46.1	45.6	41.7	35.6	26.7	20.0	33.9
Bushehr	18.9	21.1	25.0	30.0	35.0	37.2	37.8	38.9	36.1	32.8	27.2	21.1	30.0
Bandar 'Abbas	23.3	25.0	27.8	30.6	36.1	38.3	38.3	37.8	37.2	35.0	29.4	25.0	31.7

IRAN: PERSIAN GULF REGION
MEAN RELATIVE HUMIDITY

Station	Hour	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Annual
Abadan	1200	58	51	42	35	24	19	23	22	23	29	45	63	36
Ahvaz	1200	63	49	40	31	21	15	18	20	20	29	42	57	34
Bushehr	1200	65	63	53	45	46	43	45	49	43	47	51	63	52
Bandar 'Abbas	1600*	57	58	54	52	47	54	58	55	61	58	51	50	55

* Not availalbe for 1200 hours.

IRAN: PERSIAN GULF REGION
MEAN PRECIPITATION (Millimeters)

Station	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Annual
Abadan	27.9	15.2	17.8	12.7	7.6	<12.7	0.0	0.0	<12.7	5.1	22.9	35.6	142.2
Ahvaz	45.7	17.8	25.4	12.7	5.1	0.0	0.0	0.0	0.0	<12.7	20.3	43.2	170.2
Bushehr	71.1	40.6	20.3	10.2	2.5	0.0	0.0	<12.7	0.0	2.5	40.6	78.7	266.7
Bandar 'Abbas	50.8	30.5	12.7	7.6	2.5	0.0	<12.7	0.0	<12.7	<12.7	7.6	27.9	139.7

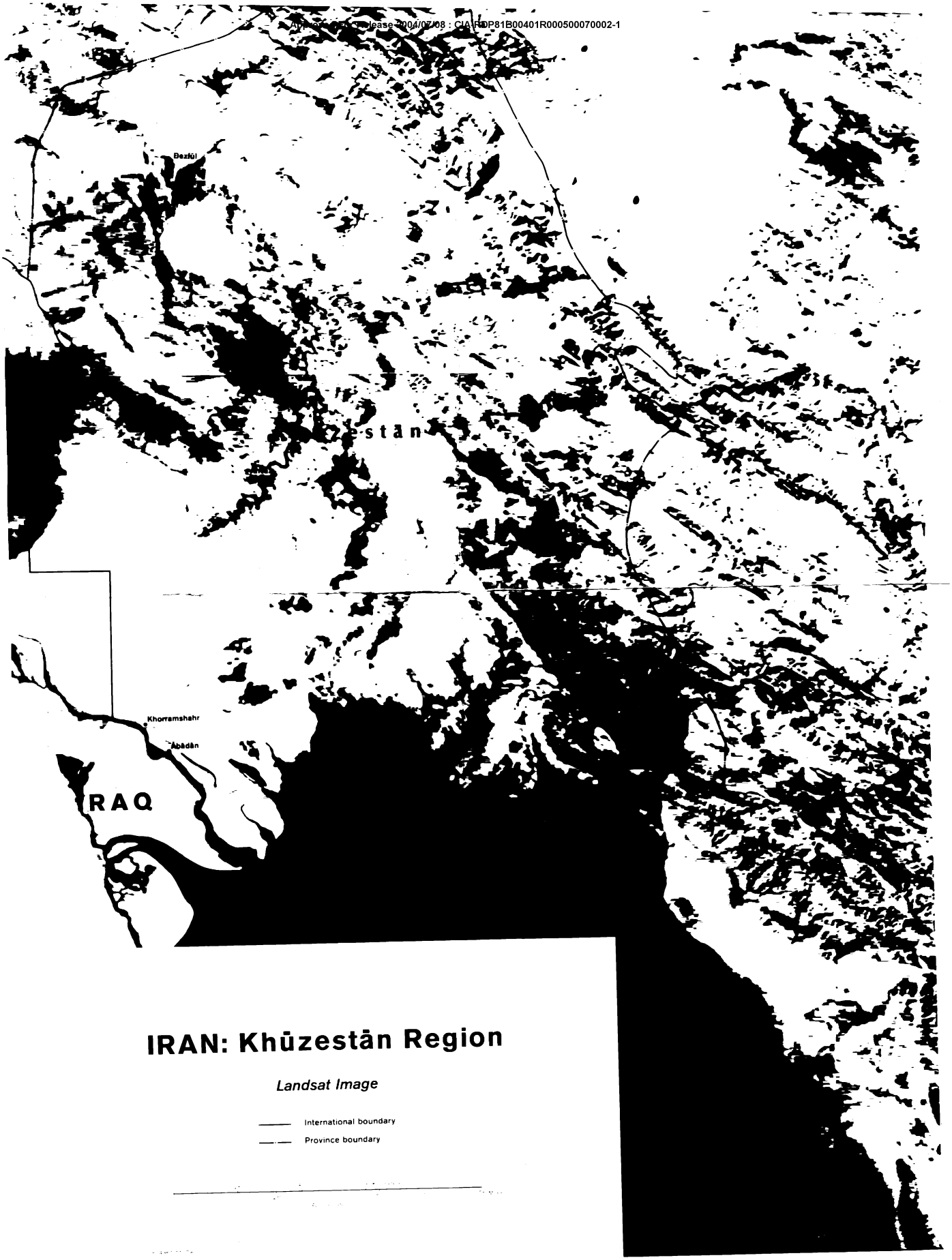
OGCR Geographic Brief: Khuzestan--Iran's Achilles Tendon, GC M 79-10119K
December 1979

Map Supplement

Map 1: Khuzestan Region (Landsat Photo Map)

Map 2: Khuzestan Region--oil producing, refining, and exporting areas (1:750,000) January 1977

25X1



IRAN: Khūzestān Region

Landsat Image

International boundary

Province boundary

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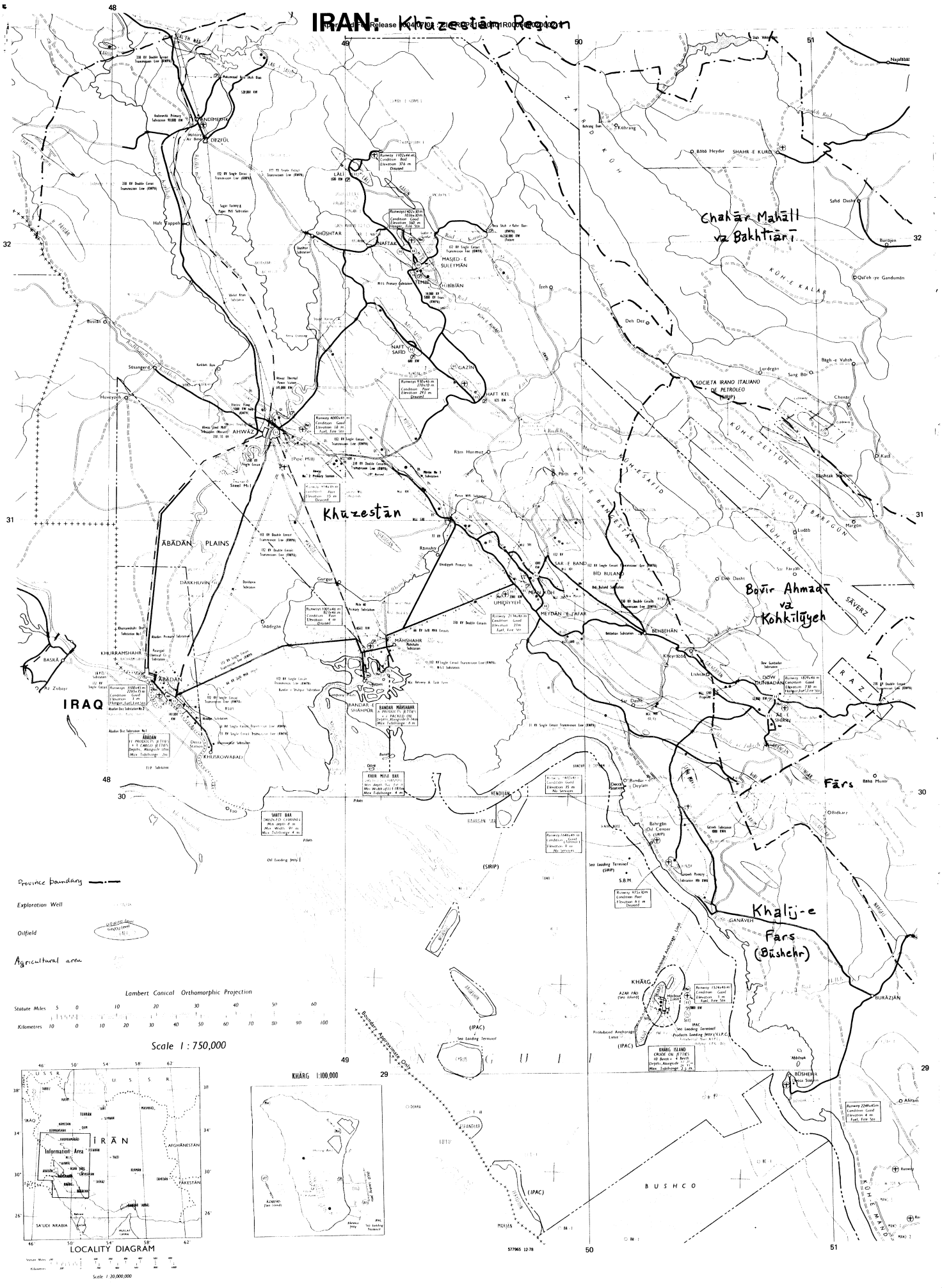
IRAN: Khūzestān Region



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